Agenda

1. Project Overview
2. Existing Traffic Patterns
3. Model Calibration
4. Socioeconomics and Land Use
5. Future Roadway Network
6. Travel Demand Model Results
7. Traffic and Revenue Forecasts
8. Sensitivities

1 Project Overview

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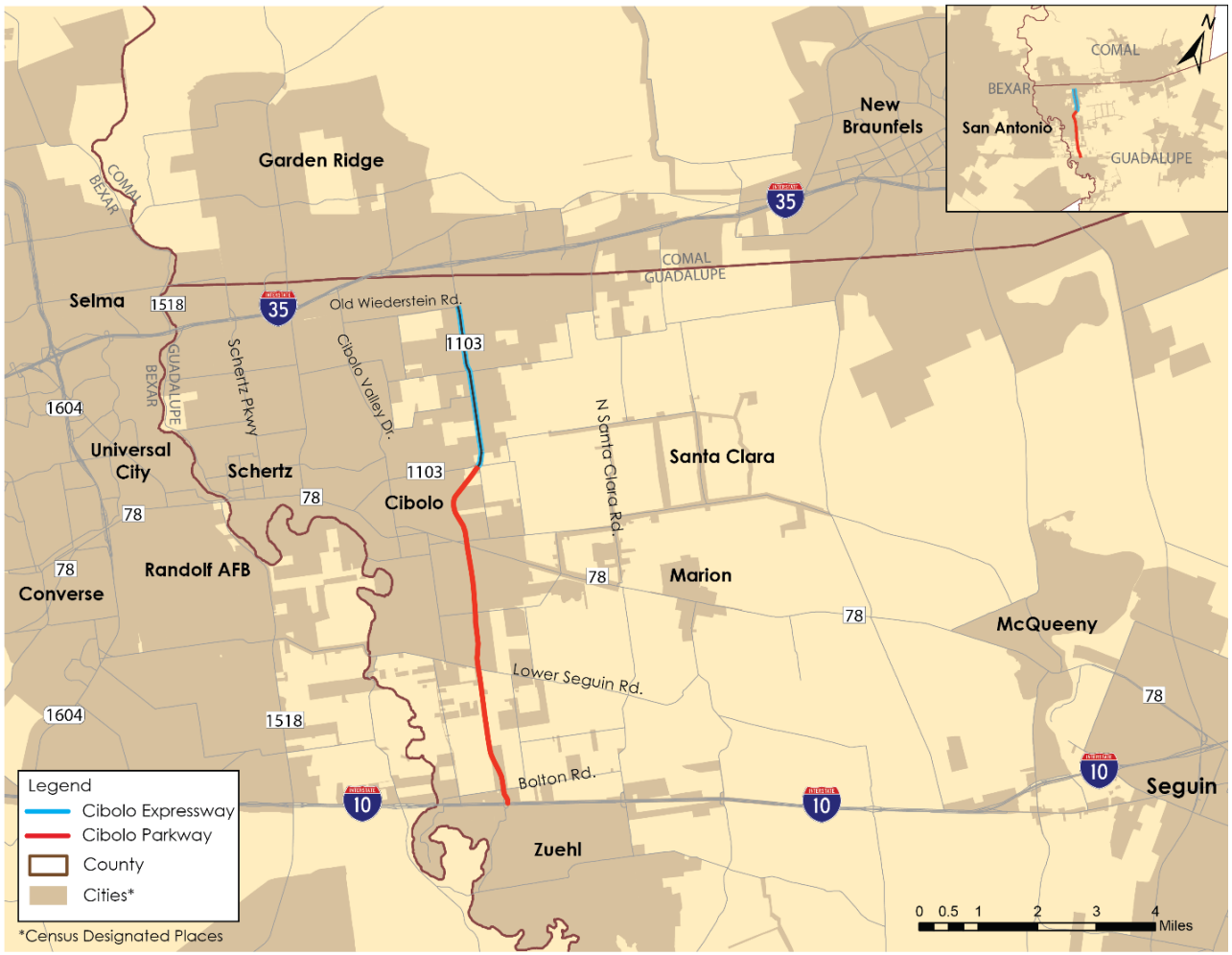
Cibolo Project Overview – Connecting I-35 to I -10



Cibolo Expressway

- 2.5 miles in FM1103 median
- One tolled lane each way
- Open 2027

Cibolo Parkway,

- 6 mile long toll road
- 2 lane initially, later 4 lanes
- Opens with TxDOT improvements

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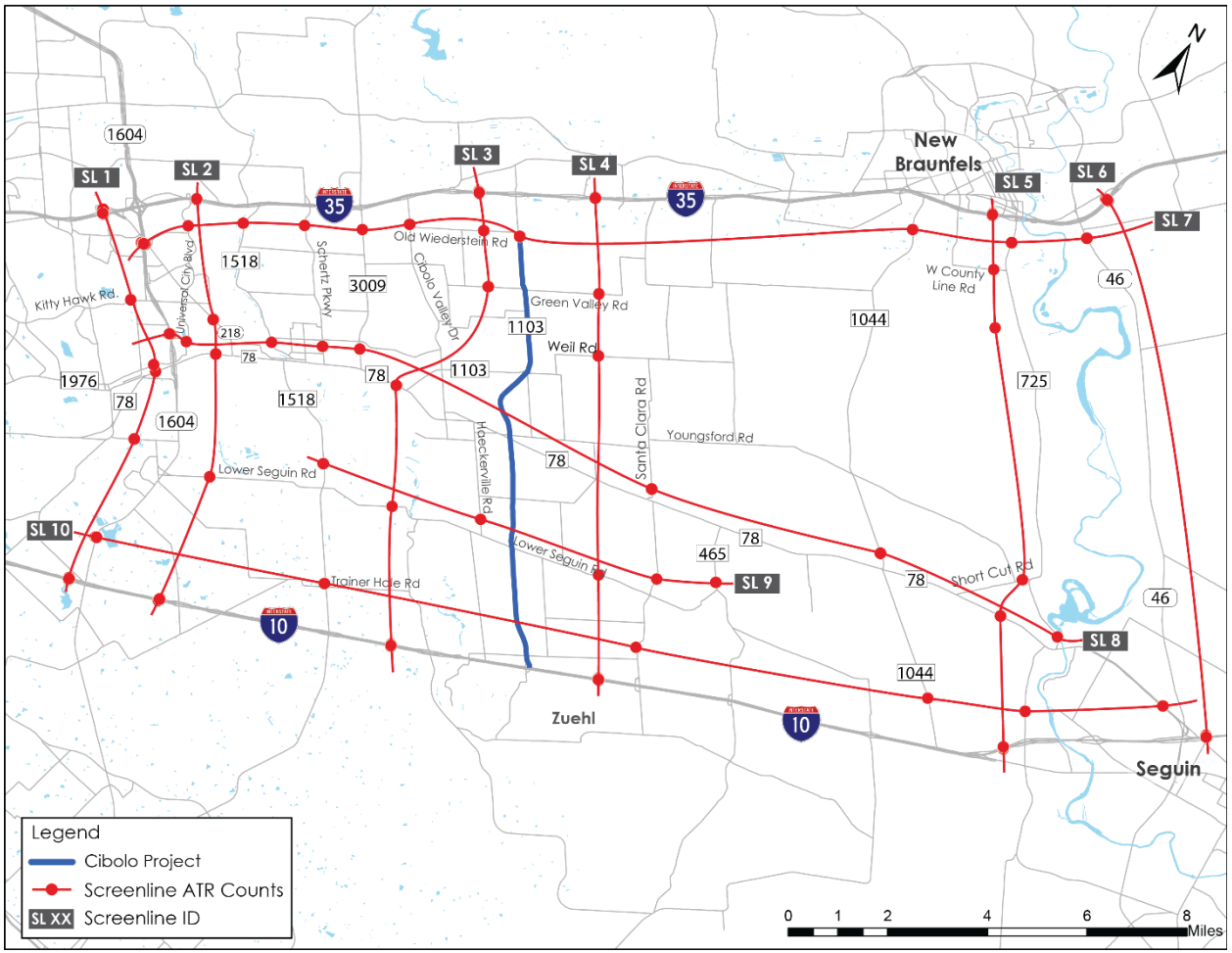
2 Existing Traffic Patterns

Map of Count Locations and Screenlines



Extensive data collection effort

- 54 multi-day machine count locations (2017)
- 4 screenlines captured North - South activity
- 6 screenlines captured East-West activity
- Travel times along key routes
- Data used in model calibration

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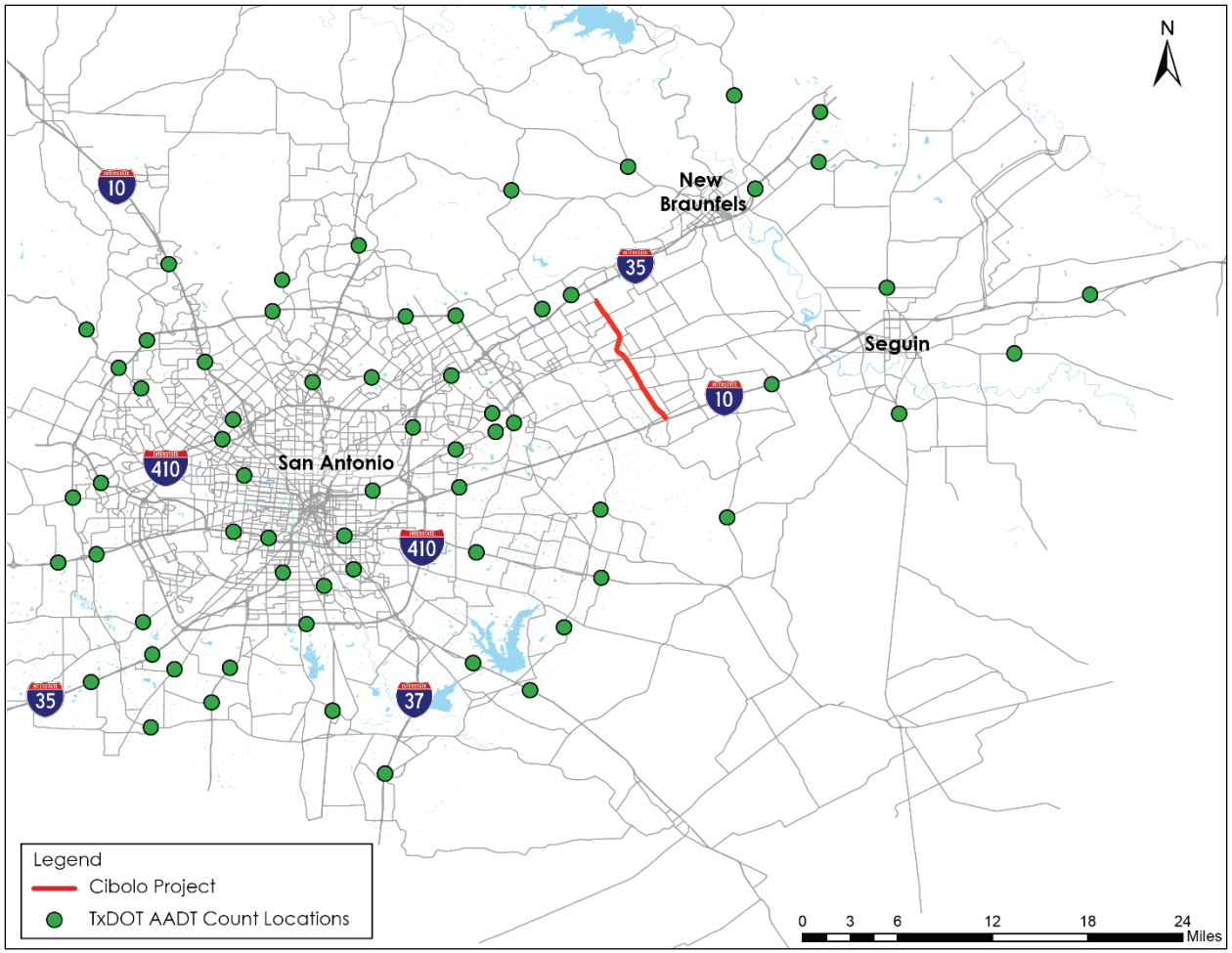
TxDOT AADT Count Locations



Several hundred locations were included in the calibration.

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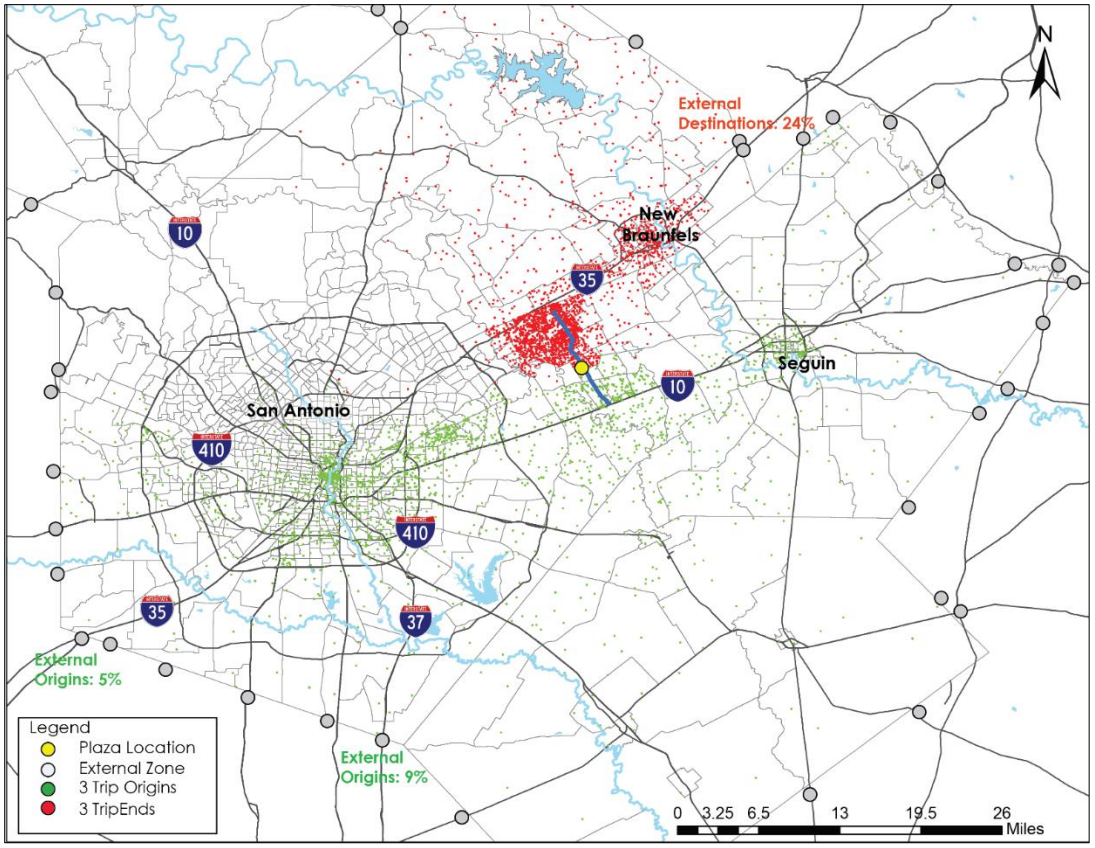
Origin and Destination Data Input



Patterns show clear grouping of potential Toll Road users.

Afternoon trip patterns shown. Green dots identify trip start, Red dots identify trip end location.

Note: need to add into T&R report

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3 Model Calibration

Calibration of AAMPO Model Achieved

Facility Type	Number of Counts	Volume			VMT		
		Observed	Estimated	EST/OBS	Observed	Estimated	EST/OBS
Limited-Access Facility	291	15,278,355	15,209,280	1.00	7,929,414	7,810,257	0.98
Expressway	88	1,040,384	959,759	0.92	762,092	744,389	0.98
Principal Arterial Divided	122	1,467,992	1,688,631	1.15	745,483	804,336	1.08
Principle Arterial CLT	146	1,829,815	1,773,648	0.97	714,465	675,436	0.95
Principal Arterial Undivided	130	689,401	702,144	1.02	598,518	661,125	1.10
Minor Arterial Divided	27	280,807	287,512	1.02	234,017	243,732	1.04
Minor Arterial CLT	34	271,398	273,263	1.01	161,108	160,061	0.99
Minor Arterial Undivided	298	1,040,912	1,031,907	0.99	1,121,470	1,180,881	1.05
Frontage Road	241	11,572,433	11,387,009	0.98	4,157,671	4,073,857	0.98
Collector/Local	355	615,790	566,110	0.92	910,034	914,885	1.01
Ramp	11	170,919	150,122	0.88	38,681	34,268	0.89
TOTAL	**1,743**	**34,258,205**	**34,029,384**	**0.99**	**17,372,954**	**17,303,227**	**1.00**

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4 Socioeconomic Data and Land Use

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Historic Population Trends

Population					
County	**1980**	**1990**	**2000**	**2010**	**2016**
Bexar	988,880	1,185,394	1,392,931	1,714,773	1,928,680
Comal	36,446	51,832	78,021	108,472	134,788
Guadalupe	46,708	64,873	89,023	131,533	155,265
Kendall	10,635	14,589	23,743	33,410	42,540
Wilson	16,756	22,650	32,408	42,918	48,480
TOTAL	1,099,425	1,339,338	1,616,126	2,031,106	2,309,753
Compound Annual Growth Rates					
County	**1980**	**1990**	**2000**	**2010**	**2016**
Bexar		1.83%	1.63%	2.10%	1.98%
Comal		3.58%	4.17%	3.35%	3.69%
Guadalupe		3.34%	3.22%	3.98%	2.80%
Kendall		3.21%	4.99%	3.47%	4.11%
Wilson		3.06%	3.65%	2.85%	2.05%
TOTAL		1.99%	1.90%	2.31%	2.17%

Five County Area continues to grow at 2-3 times 1980 levels

Growth well above national trends

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Independent Population Review and Adjustments and Projections

County	2016 Population		Difference	
	AAMPO	Adjusted	Number	Percent
Bexar	1,926,524	1,928,725	2,201	0.11%
Comal	136,768	134,746	-2,022	-1.48%
Guadalupe	168,572	155,265	-13,307	-7.89%
Kendall	38,998	42,543	3,545	9.09%
Wilson	52,136	48,479	-3,657	-7.01%
TOTAL	2,322,998	2,309,758	-13,240	-0.57%

Population Control Totals				
County	2016	2020	2030	2040
Bexar	1,928,725	2,052,771	2,367,323	2,665,130
Comal	134,746	148,564	185,736	222,813
Guadalupe	155,265	171,380	217,588	271,609
Kendall	42,543	46,569	58,392	73,220
Wilson	48,479	51,998	62,279	72,565
Total	2,309,758	2,471,282	2,891,318	3,305,337
Growth Rates				
County	2016	2020	2030	2040
Bexar		1.6%	1.4%	1.2%
Comal		2.5%	2.3%	1.8%
Guadalupe		2.5%	2.4%	2.2%
Kendall		2.3%	2.3%	2.3%
Wilson		1.8%	1.8%	1.5%
Total		1.7%	1.6%	1.3%

Employed Independent Demographer, Michael Bomba PhD.

Recognized expert regularly used by tolling agencies for IGS

Adjusted 2016 population and opined on future county control totals

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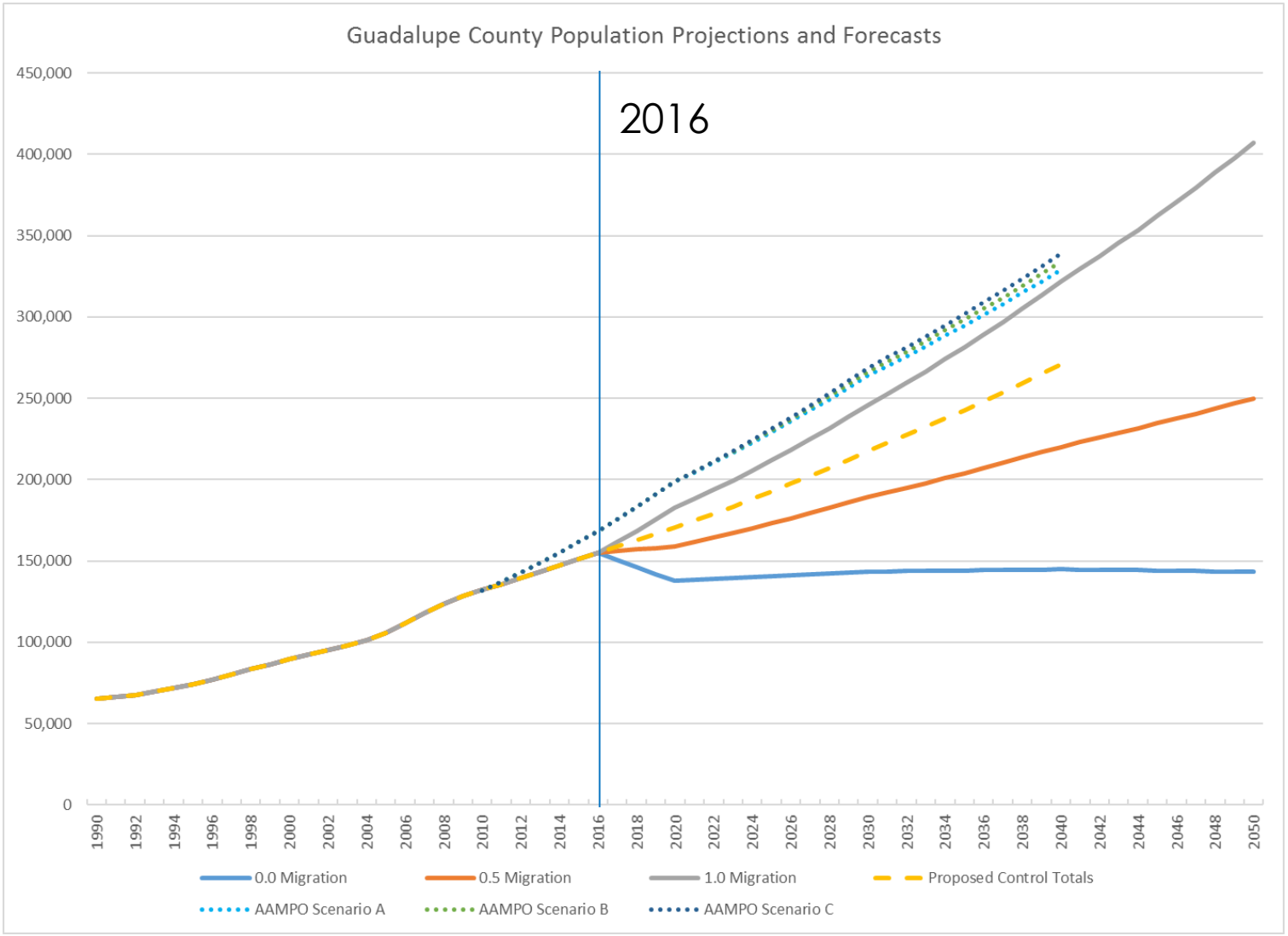
Demographic Projections



The demographic projections used for this study represent are in-line with the midpoint of the TSDC 0.5 and 1.0 migration scenario baselines.

SED forecast lines up with trendline

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Regional Employment Trends

- Employment in San Antonio-New Braunfels MSA almost doubled since 1990
- County growth recovered from great recession in 2011/2012
- Generally brisk growth in all counties since 2012

Employment										
County	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Bexar	716,666	730,302	715,292	722,147	732,527	749,534	770,531	793,727	818,499	841,664
Comal	36,955	39,034	39,173	39,332	41,073	42,249	42,800	44,952	48,500	53,131
Guadalupe	28,787	29,887	28,825	28,932	29,983	30,602	31,484	33,021	34,126	38,631
Kendall	10,176	10,674	10,755	10,654	11,243	11,675	12,081	12,669	14,021	14,873
Wilson	6,400	6,546	6,419	6,490	6,645	6,683	7,072	7,447	7,664	7,636
Total	798,984	816,443	800,464	807,555	821,471	840,743	863,968	891,816	922,810	955,935
Growth Rates										
County	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Bexar		1.9%	-2.1%	1.0%	1.4%	2.3%	2.8%	3.0%	3.1%	2.8%
Comal		5.6%	0.4%	0.4%	4.4%	2.9%	1.3%	5.0%	7.9%	9.5%
Guadalupe		3.8%	-3.6%	0.4%	3.6%	2.1%	2.9%	4.9%	3.3%	13.2%
Kendall		4.9%	0.8%	-0.9%	5.5%	3.8%	3.5%	4.9%	10.7%	6.1%
Wilson		2.3%	-1.9%	1.1%	2.4%	0.6%	5.8%	5.3%	2.9%	-0.4%
Total		2.2%	-2.0%	0.9%	1.7%	2.3%	2.8%	3.2%	3.5%	3.6%

Regional Employment

- Comparison of AAMPO and Adjusted 2016 Employment for AAMPO Model Area
- Unemployment below 4%

County	2016 Employment		Difference	
	AAMPO	Adjusted	Number	Percent
Bexar	910,080	841,680	-68,400	-7.52%
Comal	53,830	53,156	-674	-1.25%
Guadalupe	42,800	38,560	-4,240	-9.91%
Kendall	13,996	14,871	875	6.25%
Wilson	9,072	7,634	-1,438	-15.85%
TOTAL	1,029,778	955,901	-73,877	-7.17%

Employment Forecast for AAMPO Model Area, 2016 – 2040

County	Employment Control Totals			
	2016	2020	2030	2040
Bexar	841,680	899,354	1,062,478	1,255,226
Comal	53,156	59,142	82,944	107,650
Guadalupe	38,560	43,019	56,437	70,982
Kendall	14,871	16,599	22,474	29,041
Wilson	7,634	8,334	10,258	12,050
Total	955,901	1,026,448	1,234,591	1,474,949
County	**Growth Rates**			
	2016	2020	2030	2040
Bexar		1.7%	1.7%	1.7%
Comal		2.7%	3.4%	2.6%
Guadalupe		2.8%	2.8%	2.3%
Kendall		2.8%	3.1%	2.6%
Wilson		2.2%	2.1%	1.6%
Total		1.8%	1.9%	1.8%

5 Future Roadway Network

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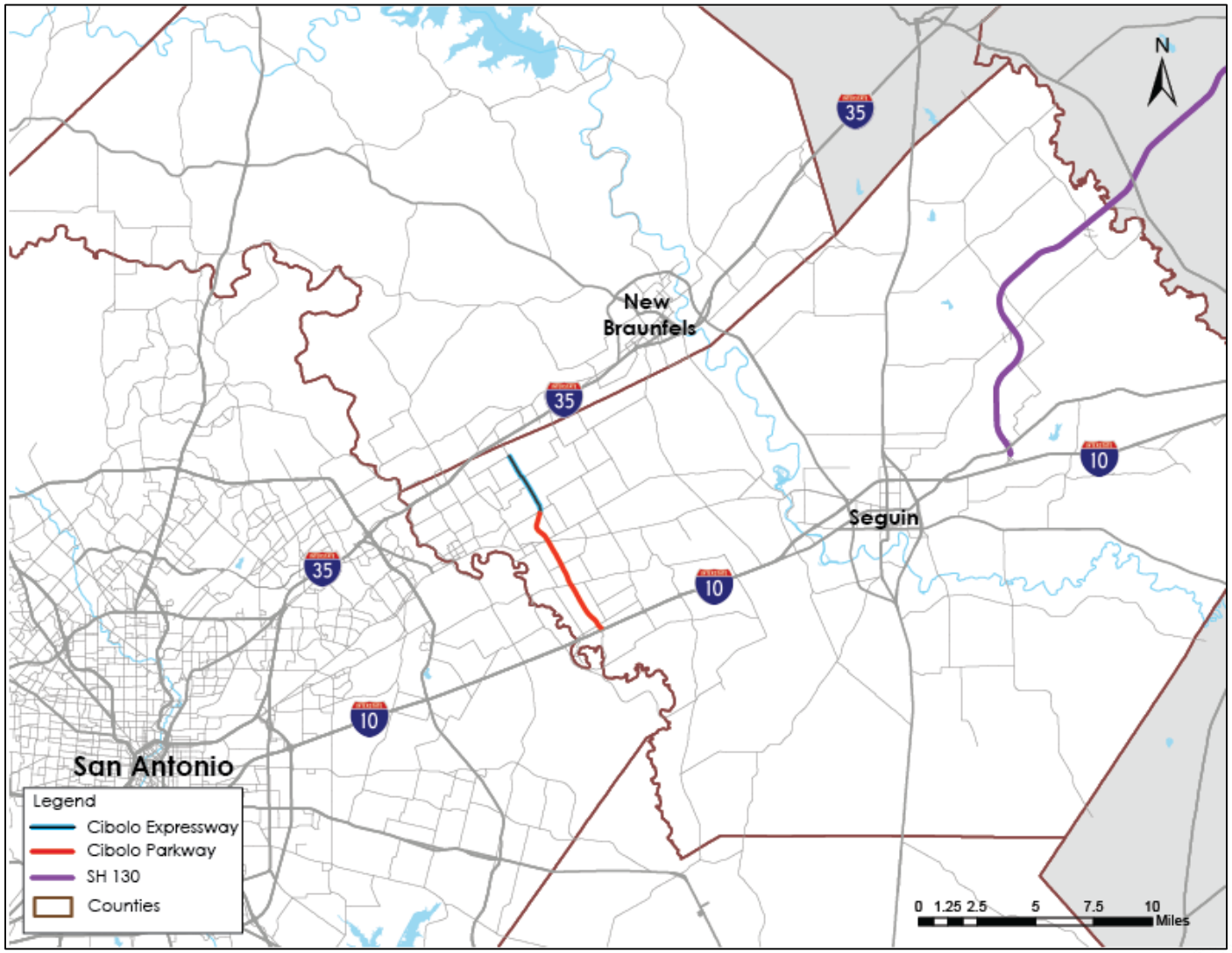
Existing and Proposed Toll Roads in Study Area



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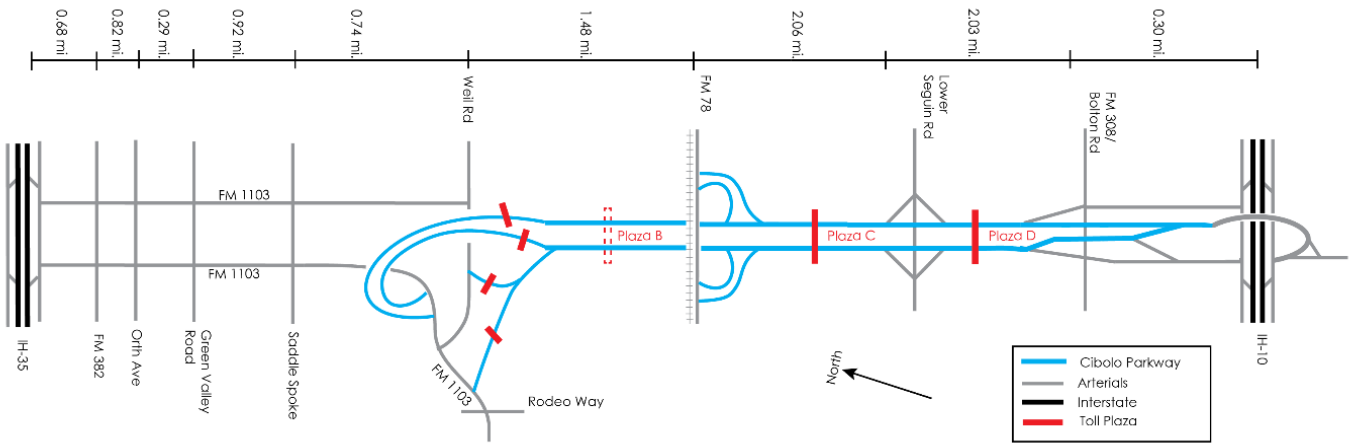
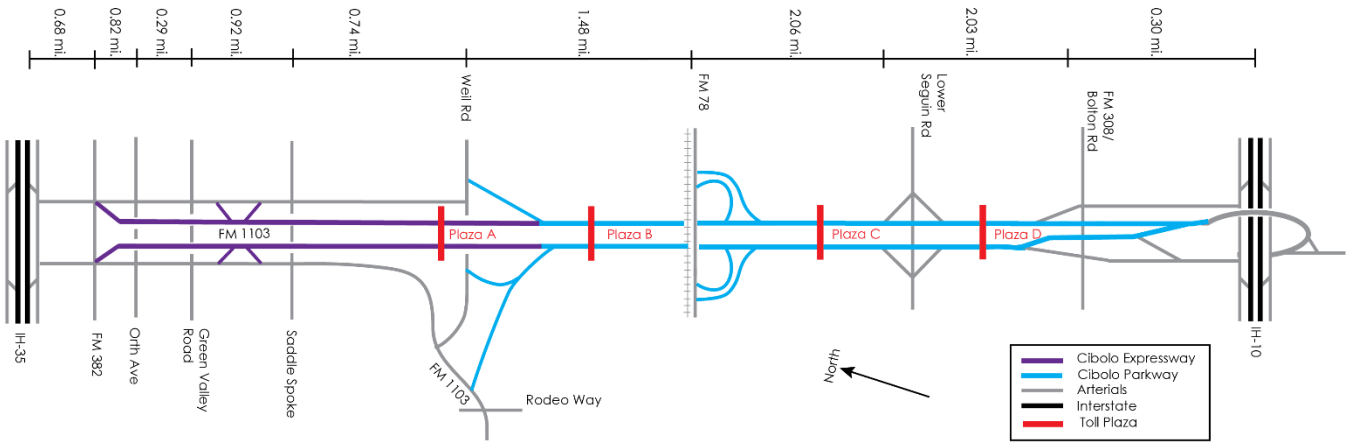
Cibolo Project

Cibolo Parkway Phase I (Weil Rd to IH-10)



Cibolo Parkway and Cibolo Expressway Phase II



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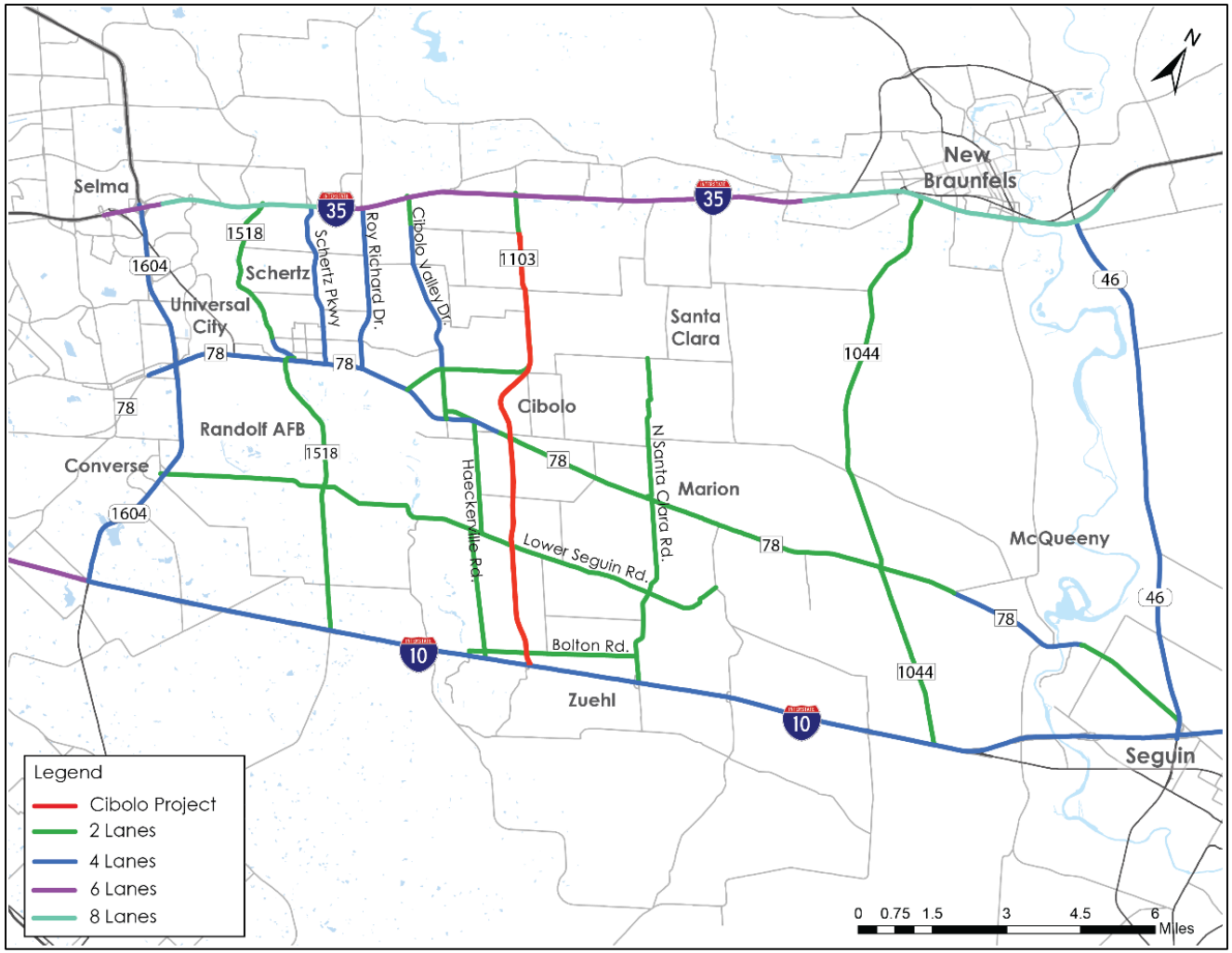
Feeder and Competitor Roads



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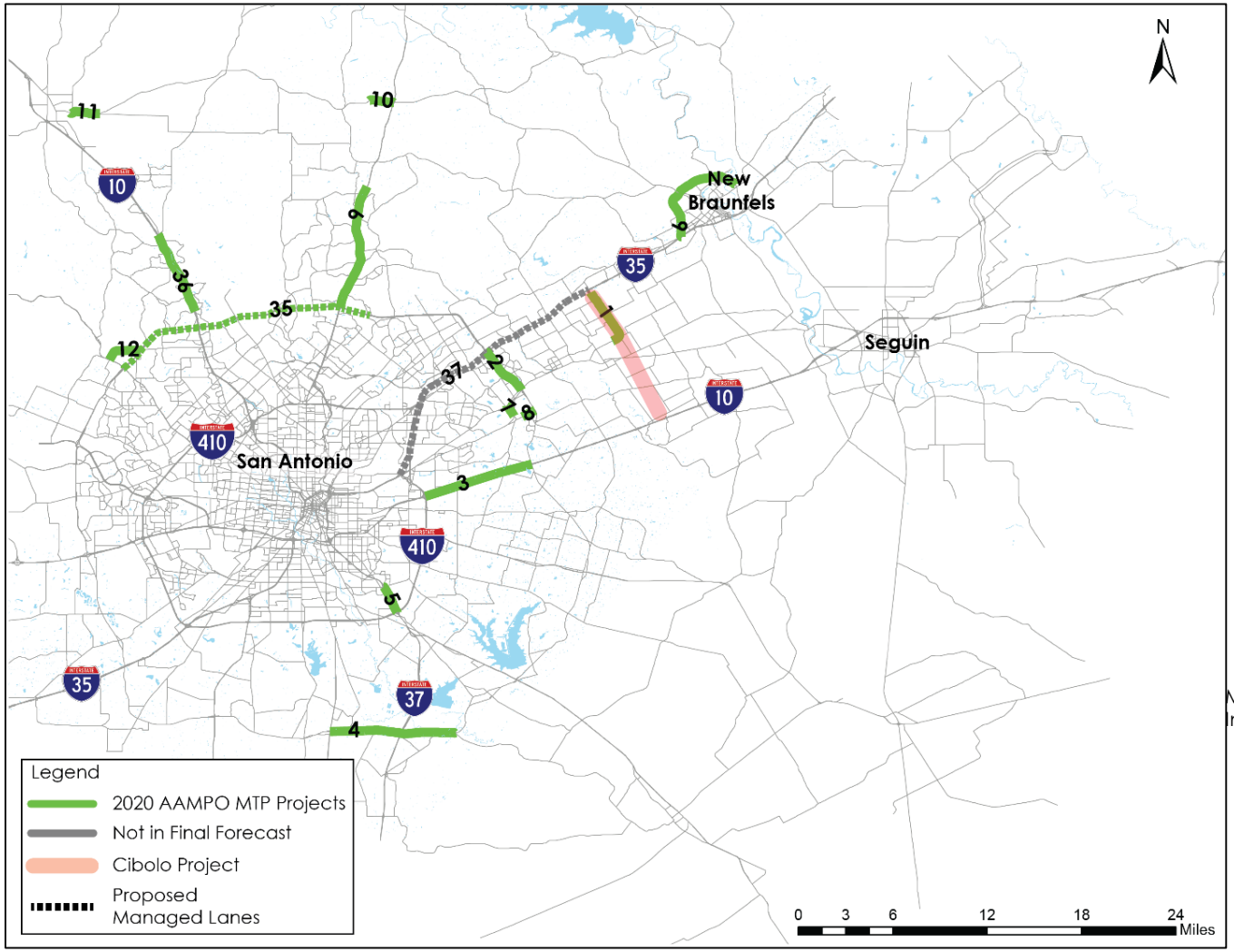
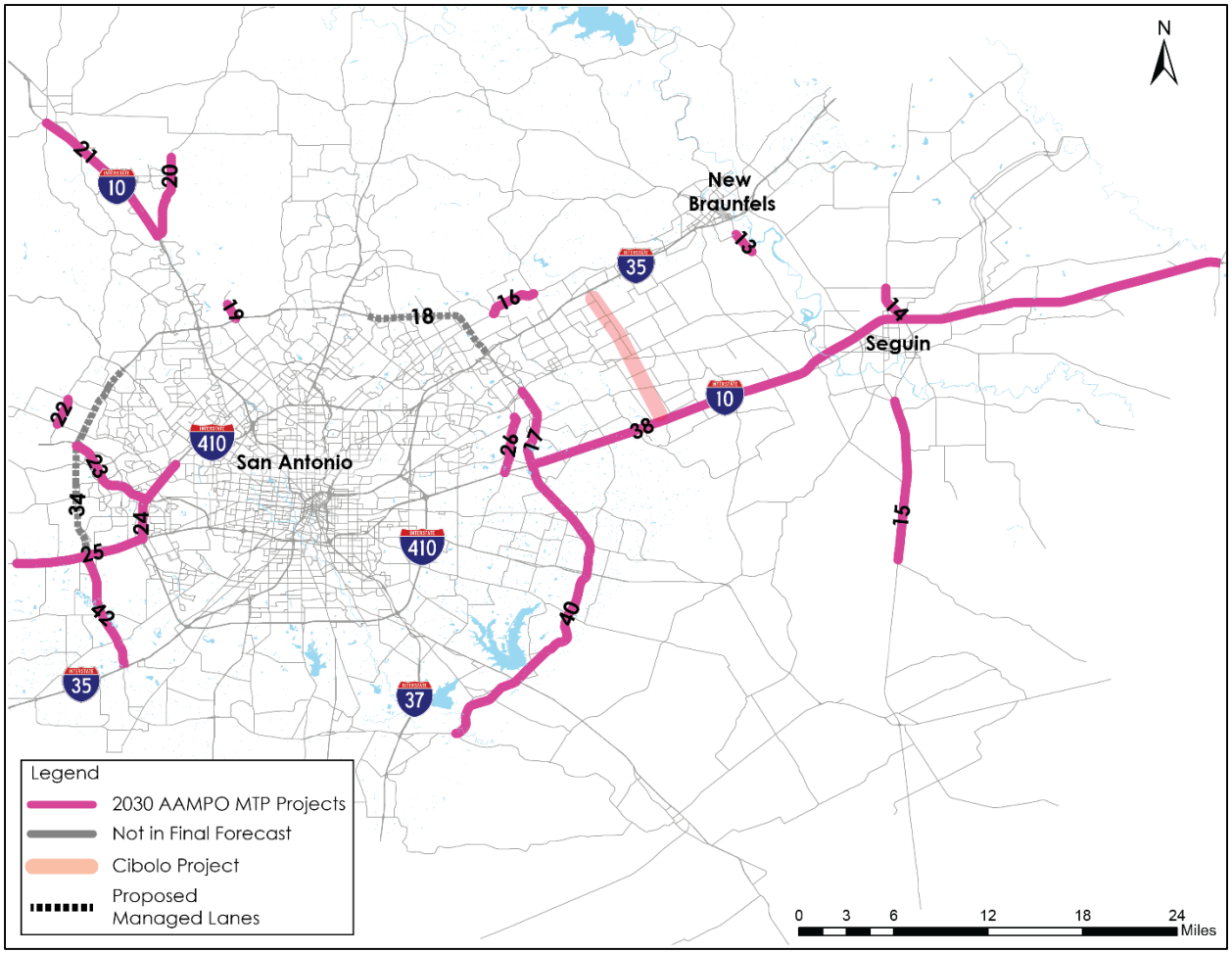
Proposed Key Network Improvements – TXDOT Changes Its Funding Strategy

2017 – 2020 Key Network Improvements



Major projects listed in XXXX

2021 – 2030 Key Network Improvements



Model Inclusion Year

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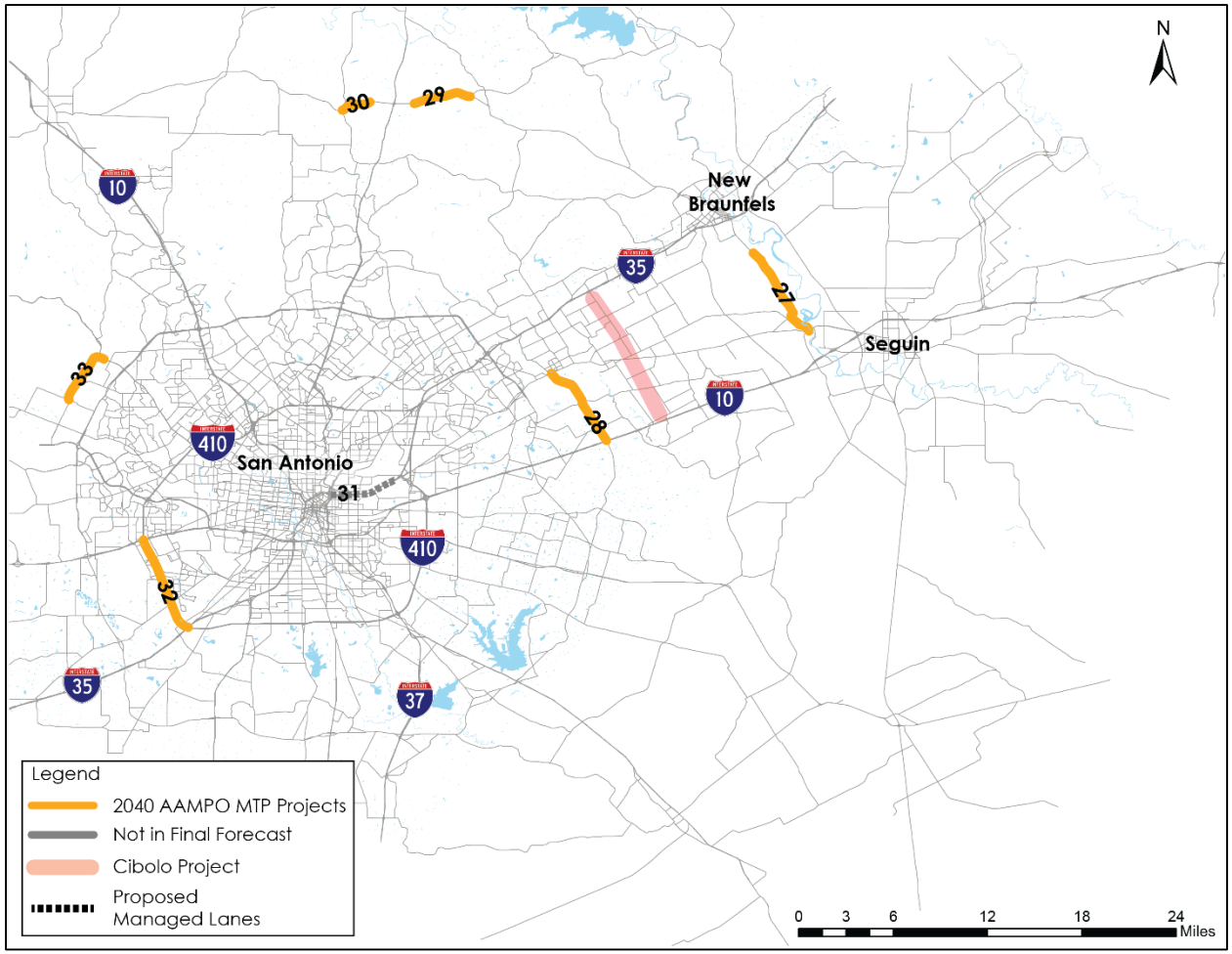
2031 – 2040 Key Highway Improvements



Model
Inclusion Year

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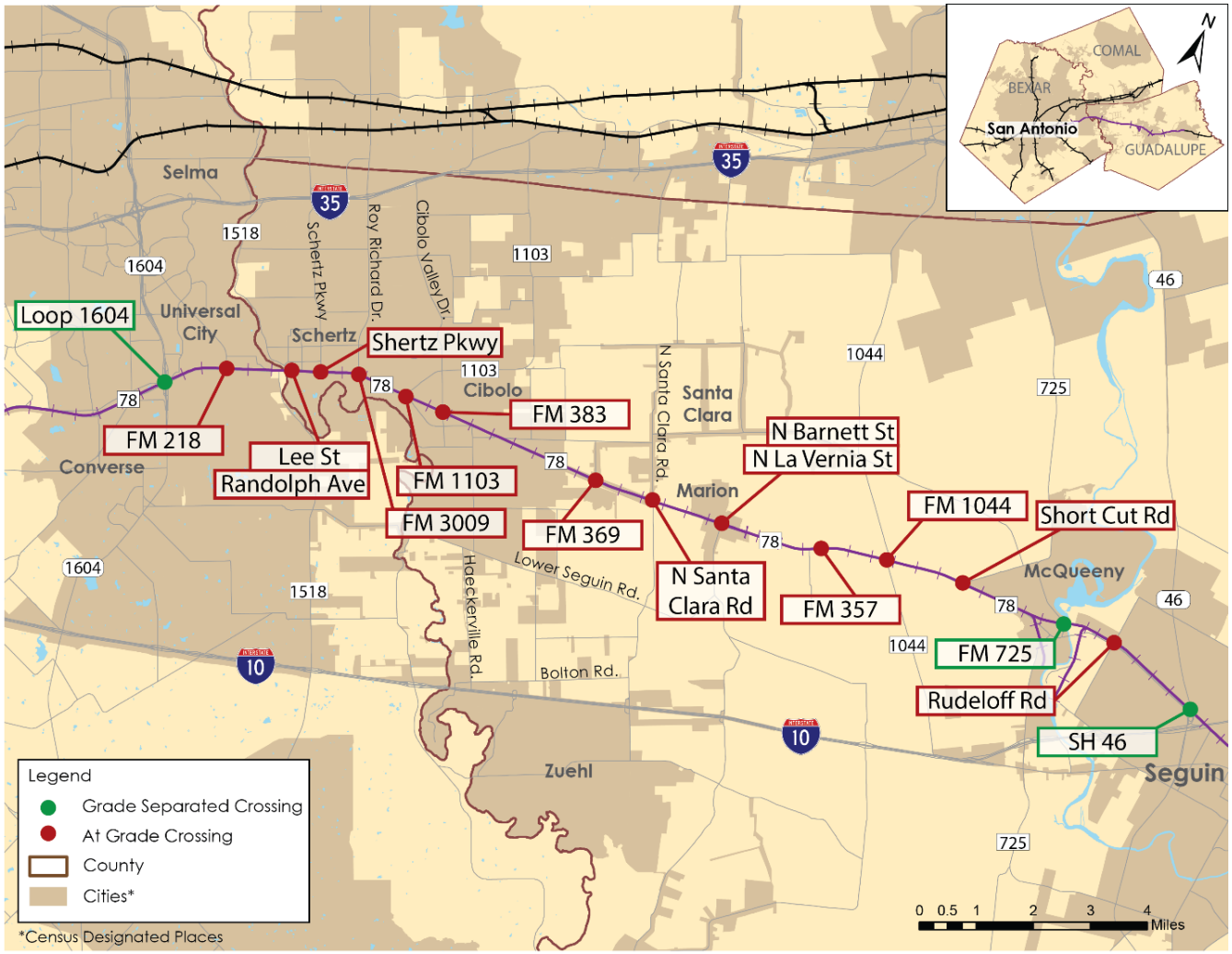
2031 – 2040 Key Highway Improvements

Freight Railroad Network and At-Grade Crossings in the Study Area



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6 Travel Demand Model Results

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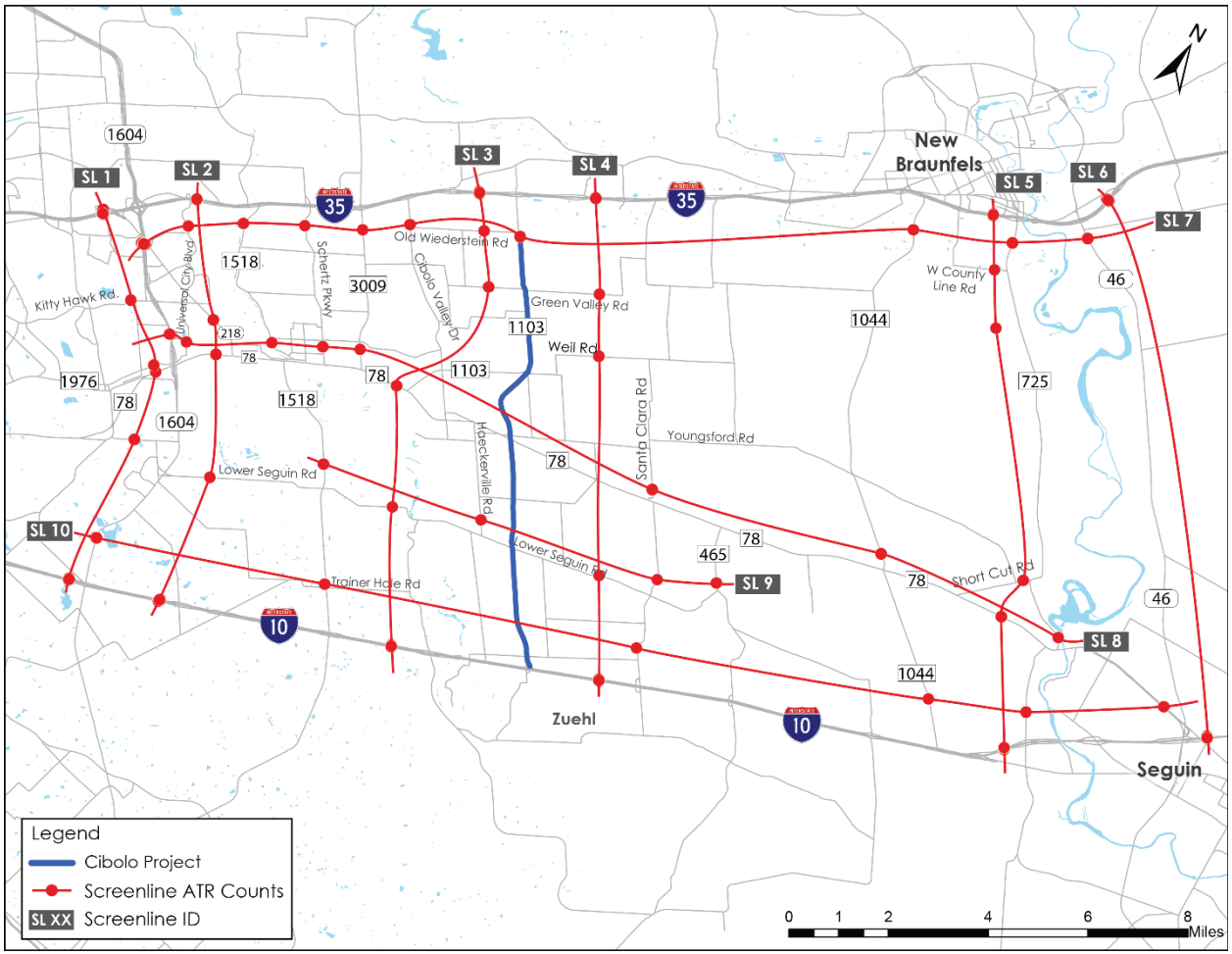
Screenline Map



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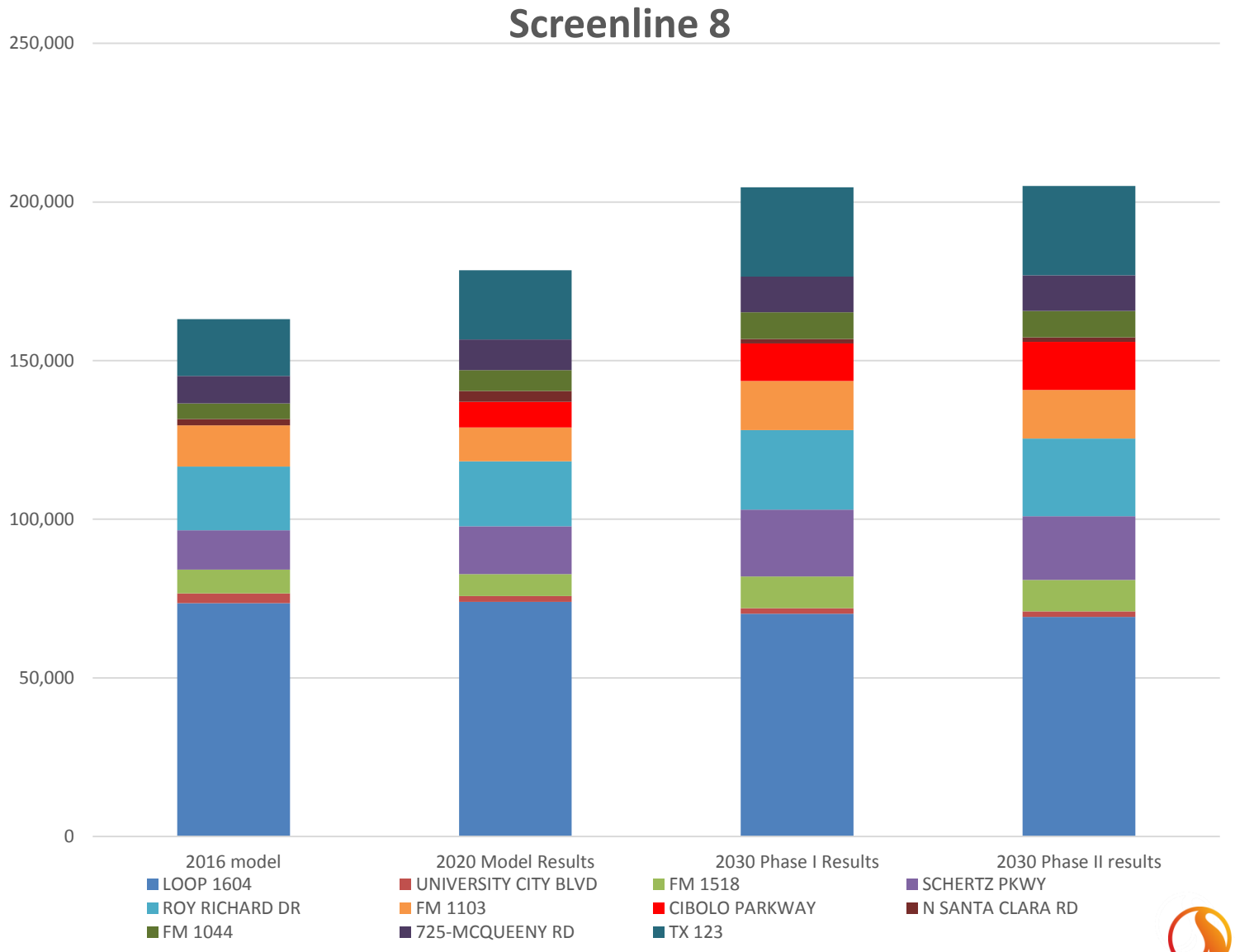
Model Results at Screenline 8



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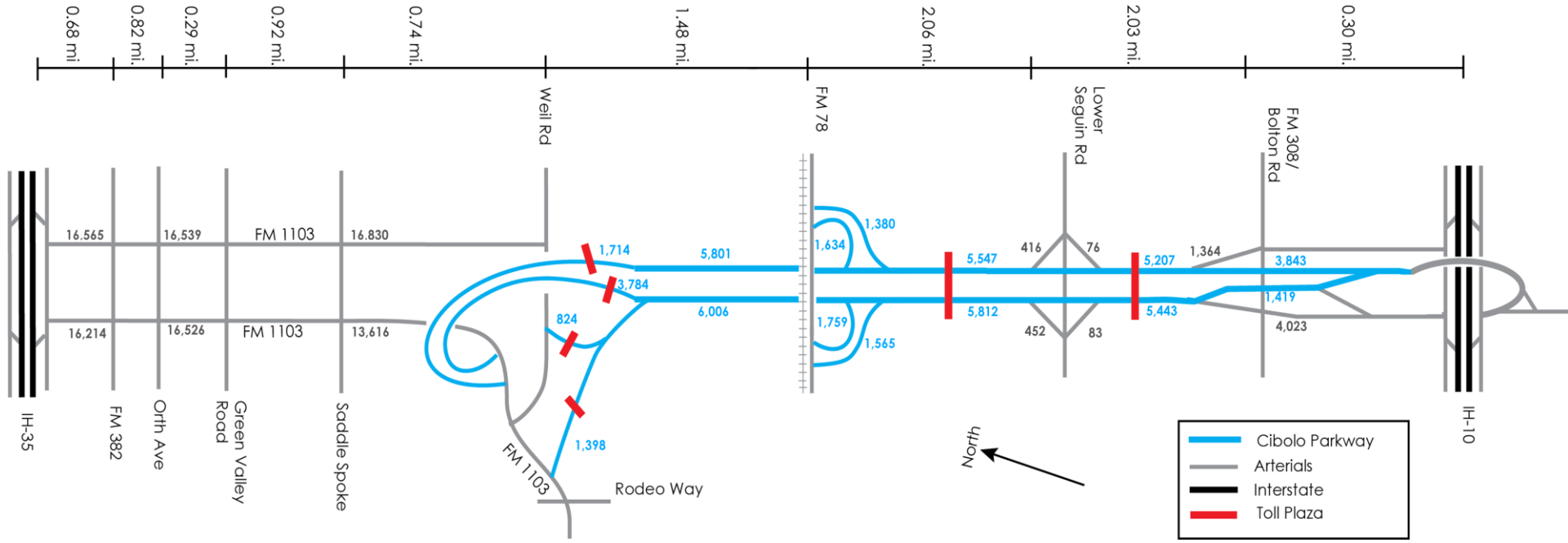
2030 Cibolo Parkway Phase I



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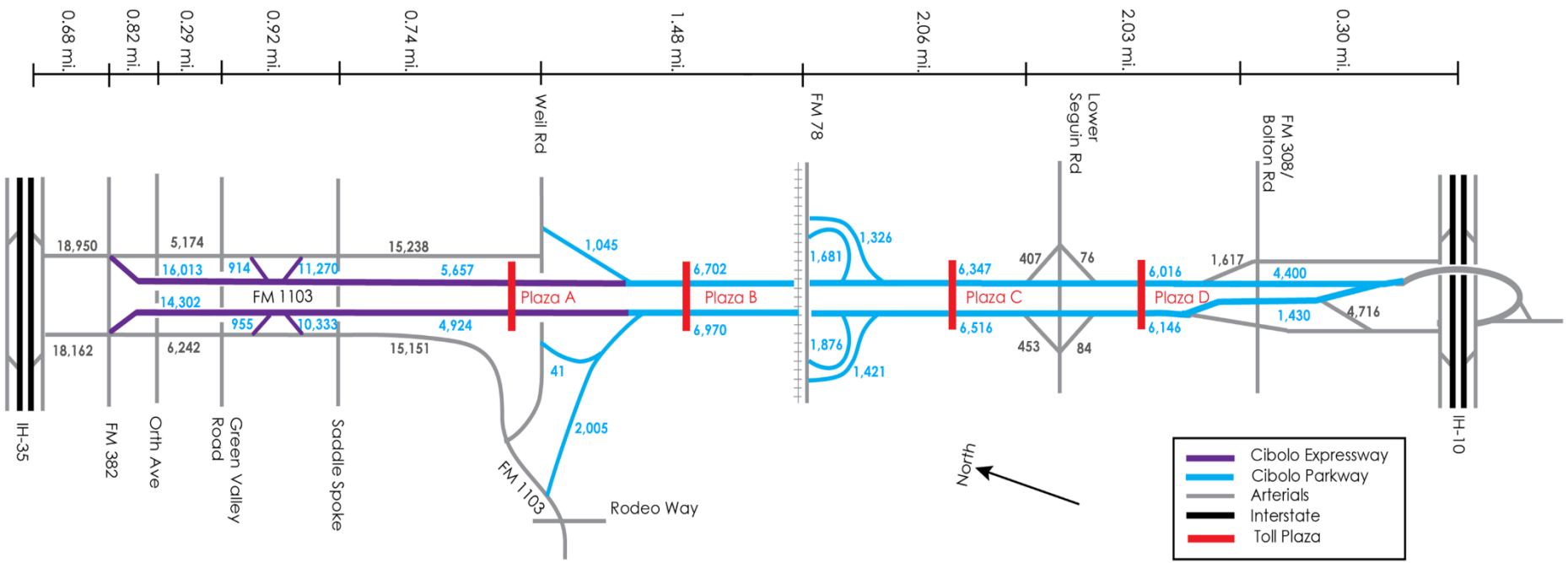
Cibolo Parkway and Cibolo Expressway Phase II



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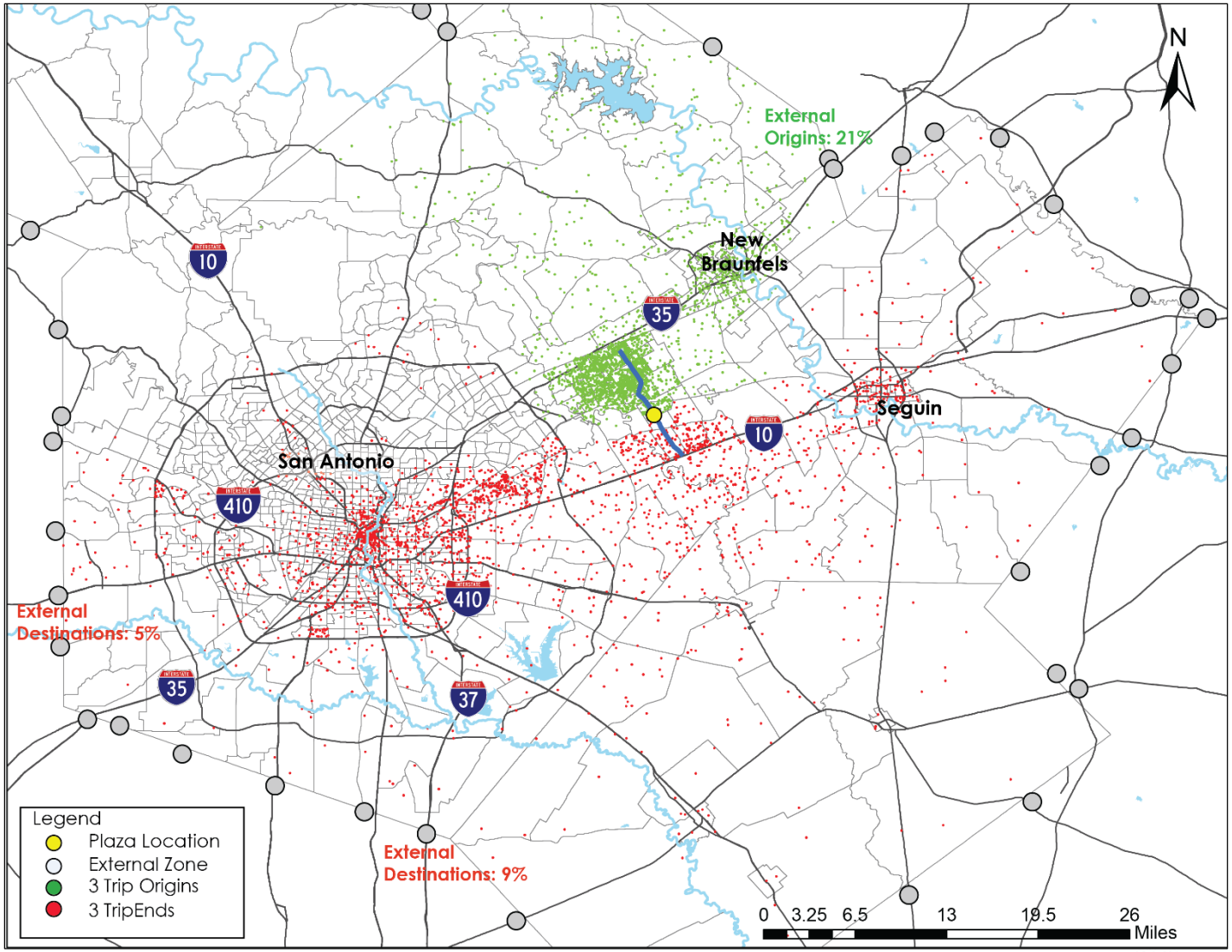
2030 Phase II Daily Traffic Using Cibolo SB (south of FM 78)



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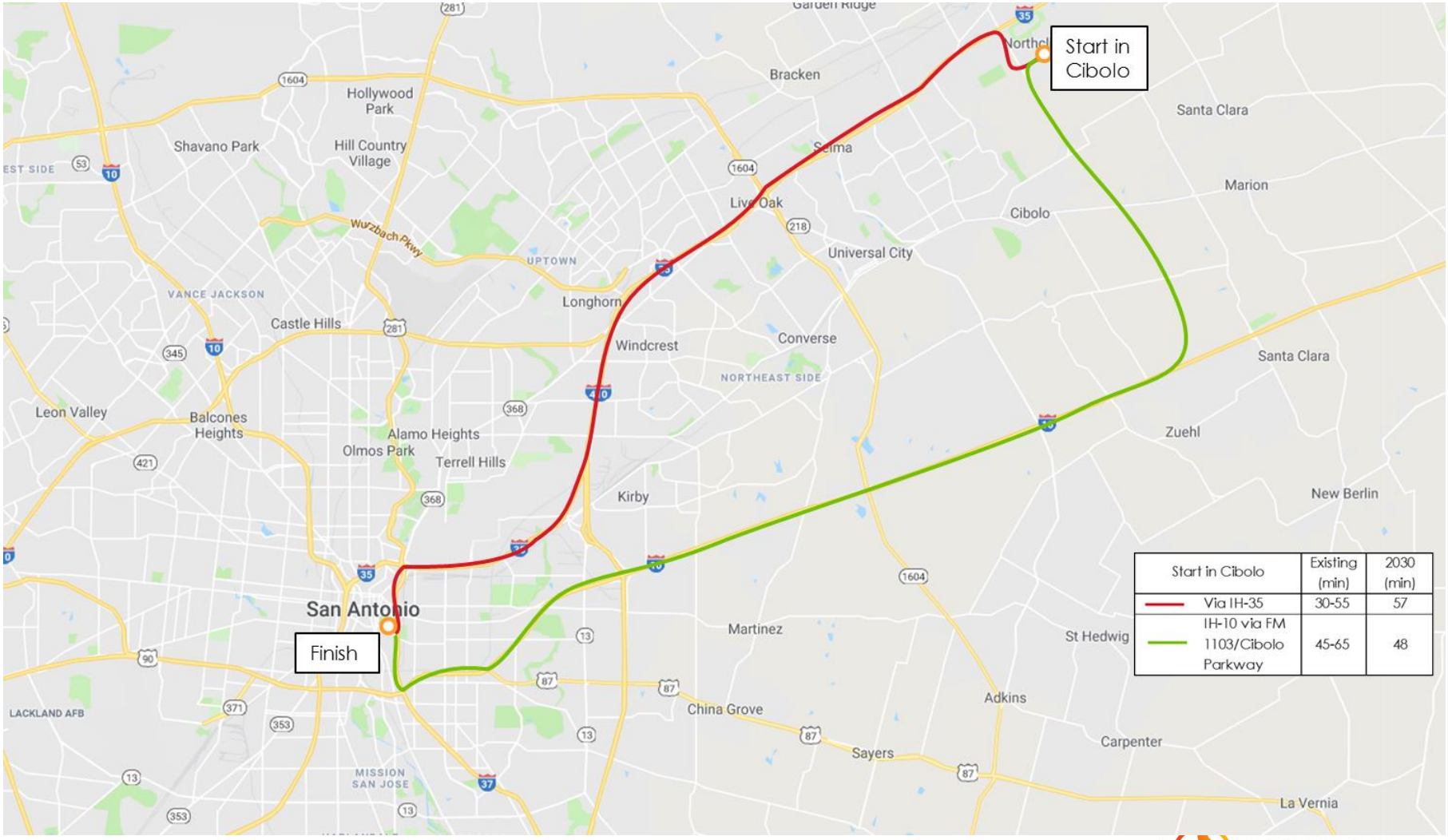
Travel Time – Comparison of Various Routes from Cibolo to Downtown San Antonio



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7 Traffic and Revenue Forecasts

Toll Policy

Model year	2020	2030 Phase I	2030 Phase II	2040
Vehicle Type Distribution				
Autos	97%	97%	97%	97%
Trucks	3%	3%	3%	3%
Payment Type Distribution				
PBM	47%	37%	36%	28%
ETC	53%	63%	64%	72%
Toll Ratios				
Truck/Auto Ratio	2.9	2.9	2.9	2.9
PBM/ETC Toll Rate	1.33	1.33	1.33	1.33
Collection Rates				
PBM	100%	100%	100%	100%
ETC	100%	100%	100%	100%
Full Length Toll				
Distance (miles)	5.87	5.87	8.59	8.59
Rate per Mile	37.5c	37.5c	37.5c	37.5c
Toll Cost (ETC)	$2.20	$2.20	$3.22	$3.22
Annualization Factor	280	280	280	280

Toll Plaza Weekday Transactions and Revenue

Toll rates at various toll locations on the Cibolo Project for Phases I and II (2016$)

Toll Location	2020			2030 Phase I		
	Transactions	Avg.Toll	Revenue	Transactions	Avg.Toll	Revenue
Express Lanes Plaza						
Weil Rd Ramps	8,118	$0.70	$5,666	11,806	$0.68	$8,000
s/o FM 78 ML Plaza	8,544	$0.97	$8,249	11,359	$0.94	$10,649
s/o Lower Seguin ML Plaza	8,186	$1.02	$8,353	10,650	$0.99	$10,552
Total	24,849	$0.90	$22,268	33,815	$0.86	$29,202
Annual Revenue in millions	$6.2			$8.2		

Toll Location	2030 Phase II			2040		
	Transactions	Avg.Toll	Revenue	Transactions	Avg.Toll	Revenue
Express Lanes Plaza	10,582	$1.21	$12,751	14,805	$1.18	$17,429
n/o FM 78 ML Plaza	13,673	$0.67	$9,217	18,663	$0.66	$12,286
s/o FM 78 ML Plaza	13,137	$0.94	$12,285	17,093	$0.91	$15,611
s/o Lower Seguin ML Plaza	12,425	$0.99	$12,281	15,429	$0.97	$14,891
Total	49,817	$0.93	$46,533	65,989	$0.91	$60,217
Annual Revenue in millions	$13.0			$16.9		

Average Annual Traffic and Revenue

Calendar Year	Annual Total Transactions	ETC Percentage	Truck Percentage	Annual Toll Revenue
2022	4,028,255	55%	3%	$ 3,576,610
2025	7,391,661	58%	3%	$ 6,485,196
2030	13,948,698	64%	3%	$ 13,029,387
2035	16,114,959	69%	3%	$ 14,827,264

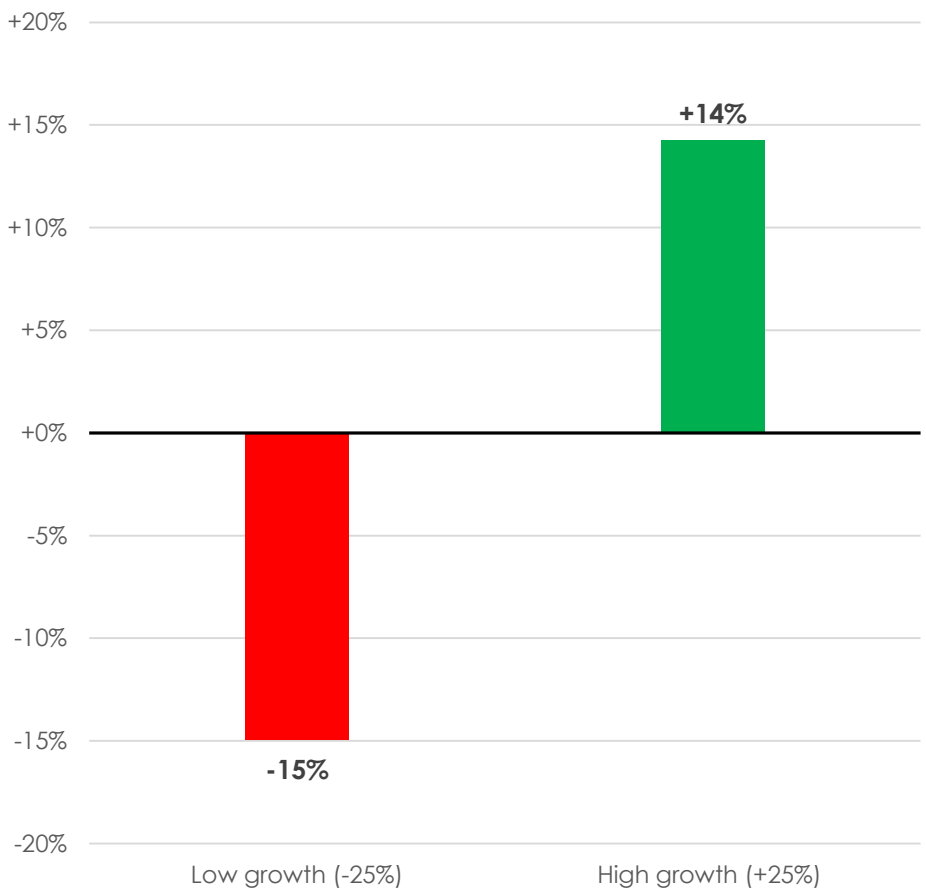
Annual Traffic and Revenue

Calendar Year	Annual Total Transactions	Annual Total Revenue	Average Toll
2022	4,028,255	$3,576,610	$ 0.89
2023	5,204,794	$4,601,807	$ 0.88
2024	6,449,124	$5,679,423	$ 0.88
2025	7,391,661	$6,485,196	$ 0.88
2026	7,617,628	$6,659,923	$ 0.87
2027	9,708,782	$9,000,336	$ 0.93
2028	10,947,943	$10,214,273	$ 0.93
2029	12,758,809	$11,973,625	$ 0.94
2030	13,948,698	$13,029,387	$ 0.93
2031	14,370,625	$13,370,615	$ 0.93
2032	14,796,981	$13,720,780	$ 0.93
2033	15,229,122	$14,080,115	$ 0.92
2034	15,668,144	$14,448,861	$ 0.92
2035	16,114,959	$14,827,264	$ 0.92
2036	16,570,348	$15,215,578	$ 0.92
2037	17,034,997	$15,614,060	$ 0.92
2038	17,509,523	$16,022,979	$ 0.92
2039	17,994,488	$16,442,607	$ 0.91
2040	18,490,419	$16,873,225	$ 0.91

- Includes ramp up.
- Open for operations in the beginning of 2022
- Express lanes open in the beginning of 2027

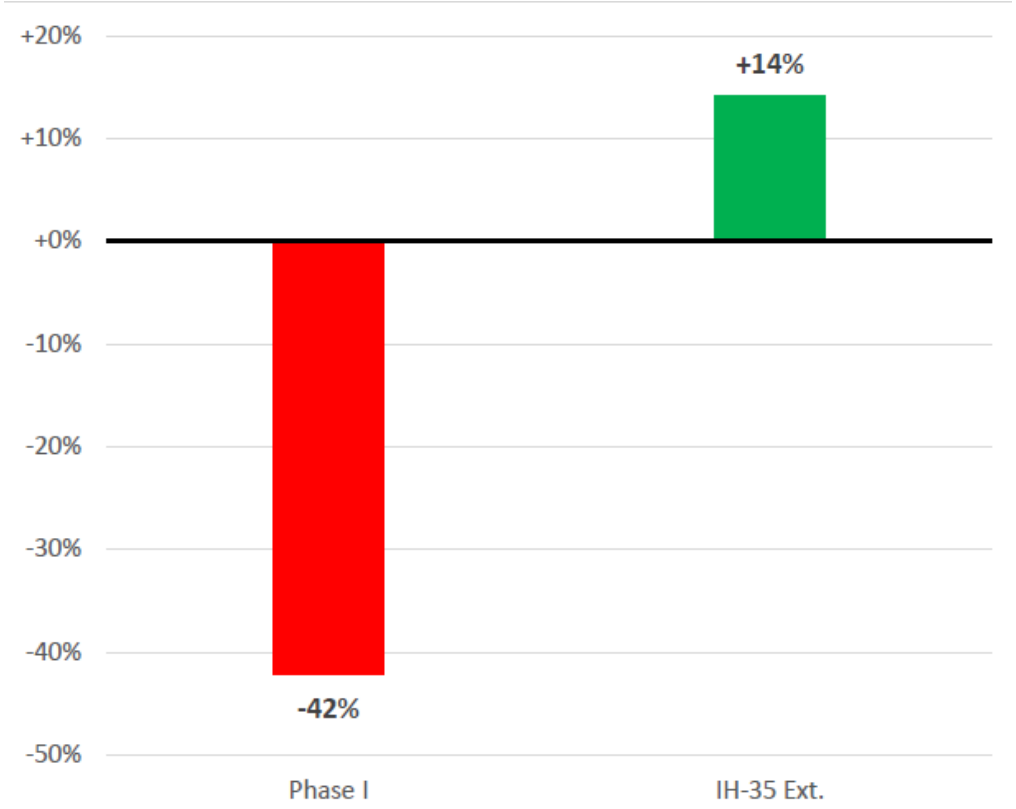
8 Sensitivities

Socioeconomic Sensitivity



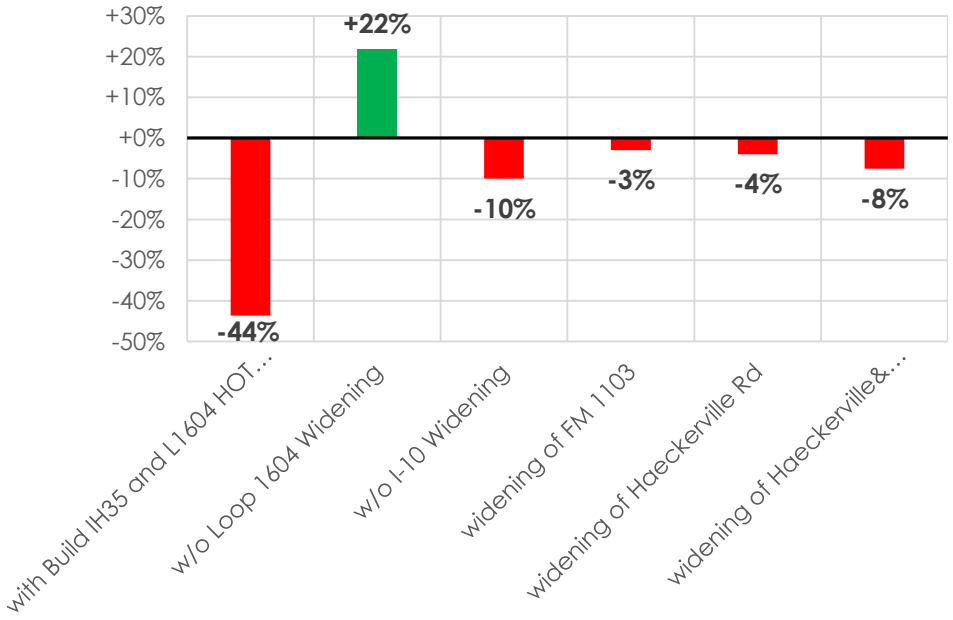
Alignment Sensitivity

- Phase I only
- Extended to IH 35

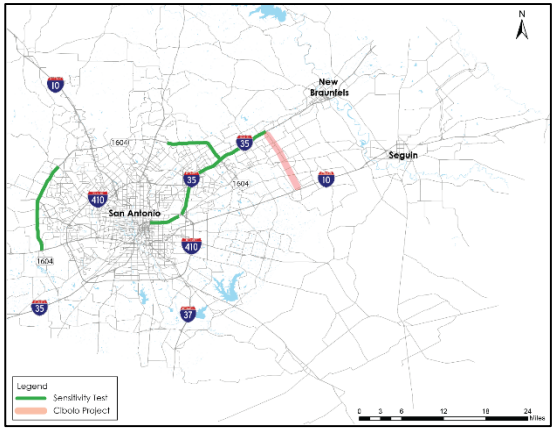


Background Network Sensitivity

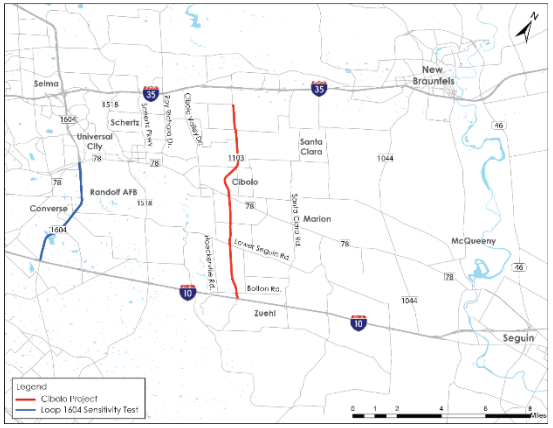
1. With Unfunded Proposed Managed Lane Projects
- **Without Widening of Loop 1604**
- Without Widening of IH-10
- Widening of Immediate Local Competitors
- Widening of Haeckerville Road
- Widening of Haeckerville and Santa Clara Roads



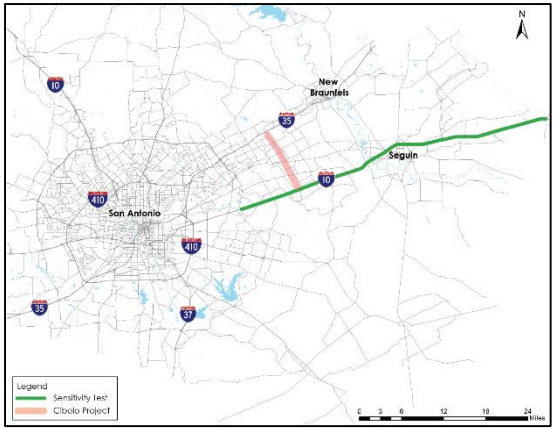
With Unfunded Proposed Managed Lane Projects



Without Widening of Loop 1604



Without Widening of IH-10



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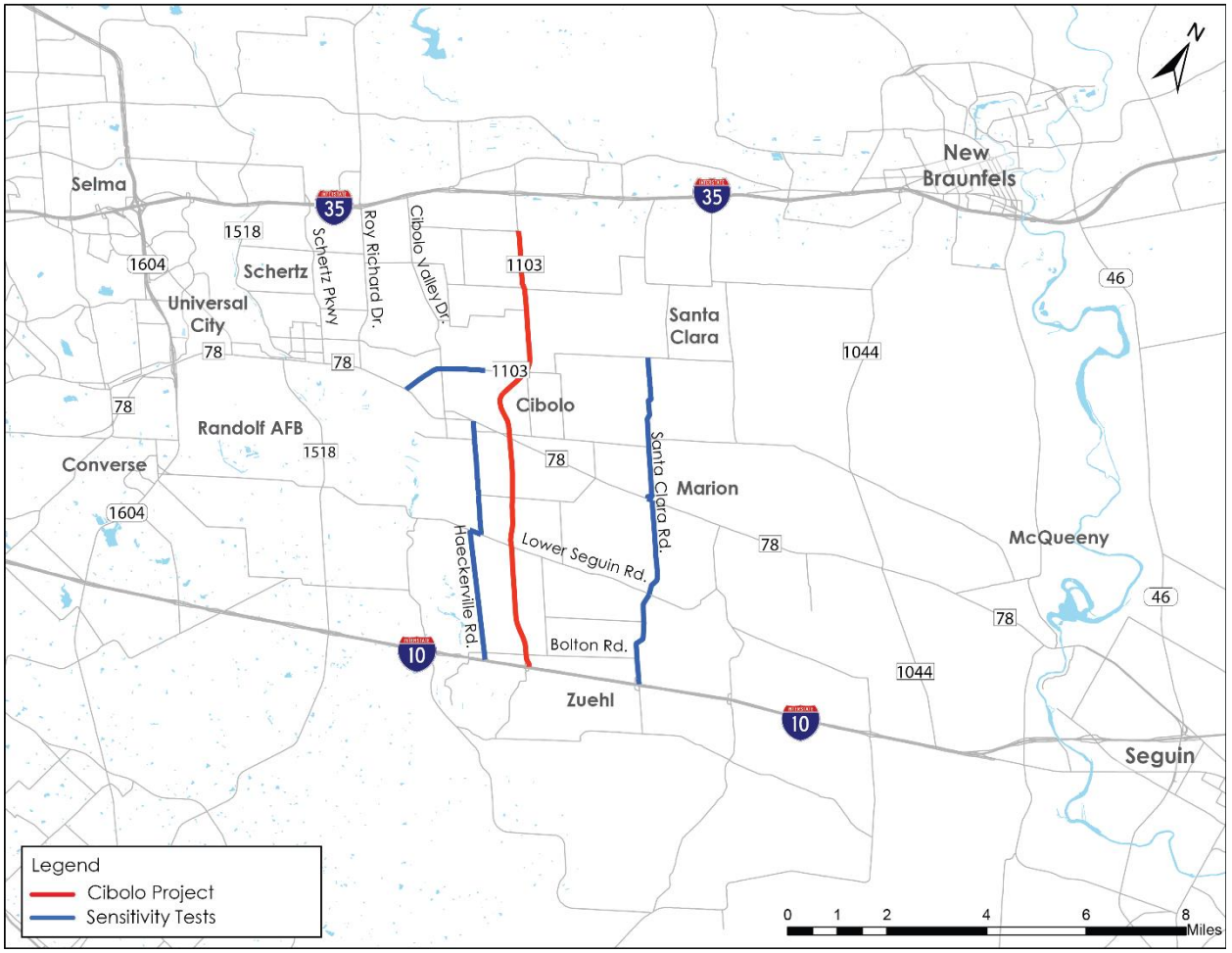
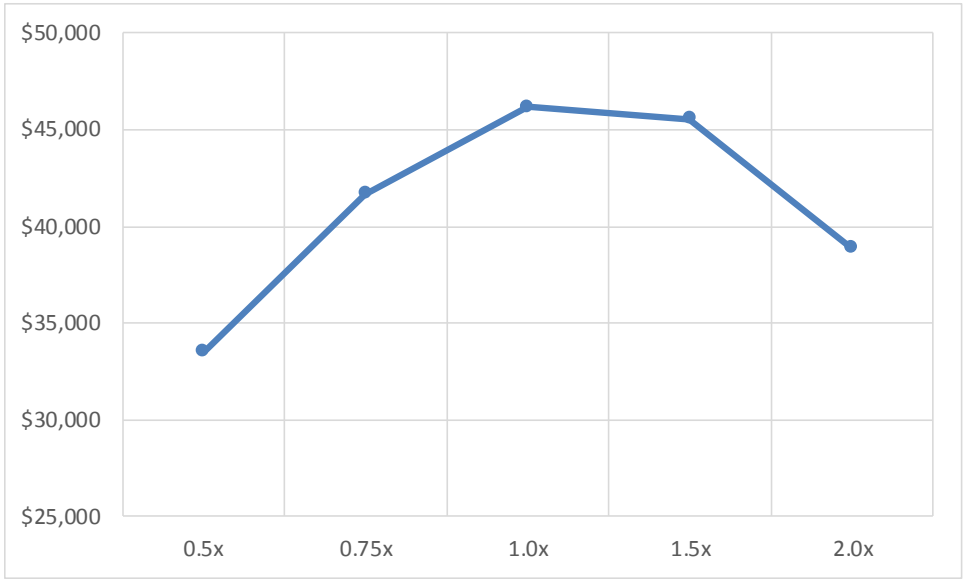
Widening of Immediate Local Competitors

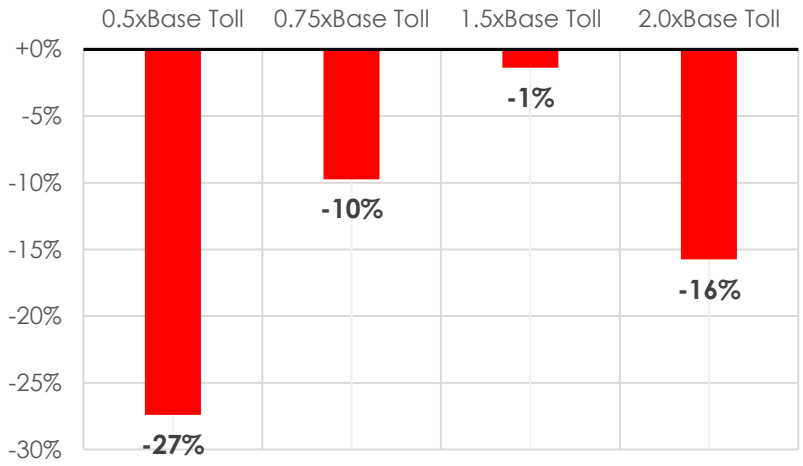


Stantec

Toll Rate Sensitivity

For this sensitivity test, the base toll of 37.5 cents per mile was tested with various multipliers, 0.5x, 0.75x, 1x,1.5x and 2.0x. If tolls are set at the maximum revenue level, any increase or decrease in toll levels would result in less revenue.





Value of Time Sensitivity

For this sensitivity test, the value of time (VOT) is varied by 25 percent. A reduction in VOT implies that the willingness to pay to save time is lower, and fewer trips are likely to be observed on the toll road. An increase in VOT implies that the willingness to pay to save time increases and thus more trips are observed on the toll road.

County	Median Household Income (2015)
Bexar	$52,230
Guadalupe	$64,252
Kendall	$79,108